

## **PHYSICAL ENVIRONMENT**

### **3.8 Water Quality and Storm Water Runoff**

#### **3.8.1 Regulatory Setting**

##### **3.8.1.1 Federal Requirements: Clean Water Act**

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature

and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (U.S. EPA Code of Federal Regulations [CFR] 40 Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

#### **3.8.1.2 State Requirements: Porter-Cologne Water Quality Control Act**

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

#### **3.8.1.3 State Water Resources Control Board and Regional Water Quality Control Boards**

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- National Pollution Discharge Elimination System (NPDES) Program

#### ***Municipal Separate Storm Sewer Systems (MS4)***

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for

five years, and permit requirements remain active until a new permit has been adopted.

The Department's MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1. The permit has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

#### *Construction General Permit*

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity

that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

#### *Section 401 Permitting*

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

#### **3.8.1.4 Regional and Local Requirements**

##### ***General Waste Discharge Requirements for De Minimis Discharges***

On June 19, 2015, the Santa Ana RWQCB adopted the General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimis) Threat to Water Quality (Order No. R8-2015–0004, NPDES No. CAG998001). This permit covers discharge of groundwater and non-storm water construction dewatering waste in the Santa Ana Region. Under this permit, discharges must comply with discharge specifications, receiving water limitations, and monitoring and reporting requirements detailed in the permit.

#### **3.8.2 Affected Environment**

This section is based on the *Water Quality Assessment Report (WQAR)* (August 2015) prepared for the Proposed Project.

The Project Area lies within the northeastern portion of the City of Anaheim and the southeastern portion of the City of Yorba Linda in the County of Orange, within the Santa Ana River Watershed. The Project Area is depicted on Figure 2.1 in Chapter 2, Project Alternatives.

##### **3.8.2.1 Regional Hydrology**

The Project Area is in the Santa Ana Region, which covers approximately 2,800 square miles in southern California. The Santa Ana River Basin makes up most of the Santa Ana Region. The Santa Ana Region is too large and complex to be managed as a single watershed. Therefore, for the purpose of watershed planning, the Santa Ana Region has been divided into 10 Watershed Management Areas (WMA). The Project Area is in the Lower Santa Ana River WMA, which extends from the Prado Dam to the Pacific Coast but excludes the Newport Bay Watershed and the Anaheim Bay, Huntington Harbor, and Bolsa Chica WMAs. The cities in the Lower Santa Ana River WMA include all or portions of Yorba Linda and Anaheim Hills, Orange, Villa Park, Anaheim, Garden Grove, Santa Ana, Fountain Valley, Huntington Beach, and Costa Mesa. The Santa Ana River is in the Santa Ana Region and is a major drainage route for southern California; the river originates in the San Bernardino Mountains and extends southwest into the Pacific Ocean in the vicinity of Newport Beach.

For regulatory purposes, the Santa Ana RWQCB designates watershed areas in Hydrologic Units (HU), which are further divided into Hydrological Areas (HAs) and Hydrologic Subareas (HSAs). As designated by the Santa Ana RWQCB, the Project

Area is in the Santa Ana River HU, the Lower Santa Ana River HA, the Santa Ana Narrows HSA, and the Santiago HSA.

### **3.8.2.2 Local Hydrology**

Storm water runoff from the Project Area is discharged directly into the Santa Ana River, Reach 2, and, ultimately, the Pacific Ocean.

Using the Orange County Master Plan of Arterial Highways (OC MPAH), Orange County Public Works applies the Commercial Development Land Use for all areas shown to be within State right-of-way when calculating the existing and planned runoff rates for Regional Flood Control Facilities. The Orange County Environmental Management Agency's *Orange County Hydrology Manual* (1986) recommends a value of 90 percent impervious for the entire area within the State right-of-way. Because the Proposed Project is a component of the OC MPAH, the changes to the regional hydrology as a result of the proposed improvements are already tabled for the Santa Ana River.

### **3.8.2.3 Surface Waters**

SR-91 is parallel to the Santa Ana River. Drainage from the Project Area flows to the Santa Ana River, Reach 2, and the Pacific Ocean. In addition, Coal Creek and Gypsum Creek are located east of the Project Area, originating in the Santa Ana Mountains. Coal Creek is northeast of Gypsum Creek and flows towards the north end of the Project Area, near SR-91. Gypsum Creek is southwest of Coal Creek and flows parallel to SR-241, toward the junction of SR-241 and SR-91.

### ***Beneficial Uses of Surface Waters***

Beneficial uses of water are defined in the Santa Ana RWQCB Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. Examples of beneficial uses include drinking water supplies, swimming, industrial and agricultural water supply, and the support of freshwater and marine habitats and their organisms.

Beneficial uses are identified in the Basin Plan for the Santa Ana River, Reach 2, from Prado Dam to 17<sup>th</sup> Street in Santa Ana. The present or potential beneficial uses are:

- **AGR:** Agricultural Water Supply
- **GWR:** Groundwater Recharge
- **REC-1:** Contact Water Recreation (swimming/wading)
- **REC-2:** Noncontact Water Recreation (boating/fishing)

- **WARM:** Warm Freshwater Habitat (for fish amenable to reproduction in warm water)
- **WILD:** Wildlife Habitat (for wild plants and animals)
- **RARE:** Rare, Threatened, or Endangered Species (habitat for plants and animals)

### **Surface Water Quality Objectives**

Surface water quality objectives for all inland waters in the Santa Ana Region as documented in the Basin Plan are listed in Table 3.8.1. In addition, the Santa Ana River, Reach 2, has the following site-specific numeric water quality objectives:

- **Total Dissolved Solids (TDS):** 650 milligrams per liter (mg/L)

#### **3.8.2.4 Groundwater**

Part of the Project Area is in the Coastal Plain of the Orange County Groundwater Basin (Orange County Basin). The rest of the Project Area is in an undefined area. The Orange County Basin underlies a coastal alluvial plain in the northwestern portion of Orange County. The basin is bounded by consolidated rocks exposed on the north in the Puente and Chino Hills, on the east in the Santa Ana Mountains, and on the south in the San Joaquin Hills. The basin is bounded by the Pacific Ocean on the southwest and by a low topographic divide at approximately the Orange/Los Angeles County Line on the northwest. The basin underlies the lower Santa Ana River watershed.

Between the SR-241/SR-91 interchange and the Orange/Riverside County Lines, the reported groundwater elevations range from approximately 359 to 411 feet (ft). Between the Orange/Riverside County Line and Green River Road, the reported groundwater elevations range from 347 ft to approximately 399 ft. Groundwater elevations rise toward the SR-91/SR-71 separation to a high elevation of 445 ft. Historical groundwater levels were recorded by the California Department of Water Resources (DWR) in its monitoring wells in the vicinity of this segment of SR-91. Historic high-groundwater levels in the vicinity of the junction of SR-241 and SR-91 and in Santa Ana Canyon along SR-91 have been mapped at 10 to 40 ft below ground surface (bgs).

The Project Area is located in a “high risk” area, defined as a location where spills from State-owned rights-of-way, activities, or facilities can discharge directly to municipal or domestic water supply reservoirs or groundwater percolation facilities.



**Table 3.8.1 Surface Water Quality Objectives for Inland Surface Waters**

<b>Constituent</b>	<b>Concentration</b>	<b>Receiving Waters</b>
Algae	Waste discharges shall not contribute to excessive algal growth in inland surface receiving waters.	All inland surface waters
Ammonia	Varies based on pH and temperature. Ranges from 0.004 to 0.0224 mg/L unionized ammonia and 0.05 to 1.49 mg/L total ammonia.	COLD beneficial use designation
	Varies based on pH and temperature. Ranges from 0.0006 to 0.0530 mg/L unionized ammonia and 0.119 to 2.27 mg/L total ammonia.	WARM beneficial use designation
Boron	Shall not exceed 0.75 mg/L as a result of controllable water quality factors.	All inland surface waters
Chlorine (residual)	Chlorine residual in wastewater discharged to inland surface waters shall not exceed 0.1 mg/L.	All inland surface waters
Coliform (fecal)	Logarithm means less than 200 organisms per 100 mL based on five or more samples per 30-day period and not more than 10% of the samples exceed 400 organisms per 100 mL for any 30-day period.	REC-1 beneficial use designation
	Logarithm means less than 2,000 organisms per 100 mL based on five or more samples per 30-day period and not more than 10% of the samples exceed 4,000 organisms per 100 mL for any 30-day period.	REC-2 beneficial use designation
Coliform (total)	Not to exceed 100 organisms per 100 mL.	MUN beneficial use designation
Color	Waste discharges shall not result in coloration of the receiving waters that causes a nuisance or adversely affects beneficial uses. The natural color of fish, shellfish, or other inland surface water resources used for human consumption shall not be impaired.	All inland surface waters
Floatables	Waste discharges shall not contain floating materials, including solids, liquids, foam, or scum, that cause a nuisance or adversely affect beneficial uses.	All inland surface waters
Fluoride	Shall not exceed 0.7 to 1.2 mg/L as a result of controllable water quality factors depending on air temperature (refer to Basin Plan).	MUN beneficial use designation
Metals	Varies based on hardness.	All inland surface waters
Methylene blue-activated substances	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Nitrate	Shall not exceed 45 mg/L as NO <sub>3</sub> or 10 mg/L as N.	MUN beneficial use designation
Oil and grease	Waste discharges shall not result in deposition of oil, grease, wax, or other materials in concentrations that result in a visible film or in coating objects in the water or that cause a nuisance or adversely affect beneficial uses.	All inland surface waters
Oxygen (dissolved)	Shall not be depressed below 5 mg/L a result of controllable water quality factors.	WARM beneficial use designation
	Shall not be depressed below 6 mg/L a result of controllable water quality factors.	COLD beneficial use designation

**Table 3.8.1 Surface Water Quality Objectives for Inland Surface Waters**

Constituent	Concentration	Receiving Waters
	Waste discharges shall not cause the median dissolved oxygen concentration to fall below 85% of saturation or the 95 <sup>th</sup> percentile concentration, or fall below 75% of saturation within a 30-day period.	All inland surface waters
pH	Shall not be raised above 8.5 or depressed below 6.5 as a result of controllable water quality factors.	All inland surface waters
Radioactivity	Shall not exceed the California Code of Regulations, Title 22, standards of 5 pCi/L for combined radium-226 and radium-228, 15 pCi/L for gross alpha, 20,000 pCi/L for tritium, 8 pCi/L for strontium-90, 50 pCi/L for gross beta, and 20 pCi/L for uranium.	MUN beneficial use designation
Solids (suspended and settleable)	Shall not cause nuisance or adversely affect beneficial uses.	All inland surface waters
Sulfides	Shall not be increased as a result of controllable water quality factors.	All inland surface waters
Surfactants	Waste discharges shall not contain concentrations of surfactants that result in foam in the course of flow or use of the receiving water or that adversely affect aquatic life.	All inland surface waters
Taste and odor	Shall not contain taste- or odor-producing substances at concentrations that cause a nuisance or adversely affect beneficial uses.	All inland surface waters
Temperature	Shall not be raised above 90°F from June through October or above 78°F during the rest of the year as a result of controllable water quality factors.	WARM beneficial use designation
	Shall not be increased by more than 5°F as a result of controllable water quality factors.	COLD beneficial use designation
Toxic substances	Shall not be discharged at levels that will bioaccumulate in aquatic resources to levels that are harmful to human health. Concentrations of toxic pollutants in the water column, sediments, or biota shall not adversely affect beneficial uses.	All inland surface waters
Turbidity	Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20 percent. Where natural turbidity is between 50 and 100 JTU, increases shall not exceed 10 NTU. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent.	All inland surface waters

Source: *Water Quality Assessment Report* (August 2015).

°F = degrees Fahrenheit

Basin Plan = Water Quality Control Plan – Santa Ana River Basin

COLD = Cold Freshwater Habitat

JTU = Jackson turbidity units

mg/L = milligrams per liter

mL = milliliters

MUN = Municipal and Domestic Water Supply

N = nitrogen

NO<sub>3</sub> = nitrate

NTU = nephelometric turbidity units

pCi/L = picocuries per liter

pH = percentage of hydrogen

REC-1 = Contact Water Recreation

REC-2 = Noncontact Water Recreation

WARM = Warm Freshwater Habitat

The Orange County Water District (OCWD) maintains a system of diversion structures and recharge basins along a 6-mile (mi) section of the Santa Ana River that captures most of the water that would otherwise flow into the Pacific Ocean. Runoff from SR-91 discharges directly into the Santa Ana River and is, therefore, considered a “high risk” area.

### ***Beneficial Uses for Groundwater***

The present or potential beneficial uses identified in the Basin Plan for the Orange County Groundwater Management Zone are:

- **MUN:** Municipal and Domestic Supply
- **AGR:** Agricultural Supply
- **IND:** Industrial Supply
- **PROC:** Process Water Supply

### ***Groundwater Quality Objectives***

The groundwater quality objectives for the Santa Ana Region as designated in the Basin Plan are provided in Table 3.8.2. The site-specific groundwater quality objectives for the Orange County Groundwater Basin are:

- **Total Dissolved Solids (TDS):** 580 mg/L
- **Nitrate as Nitrogen:** 3.4 mg/L

## **3.8.2.5 Regional Water Quality**

### ***Surface Water Quality***

The surface waters are in the Lower Santa Ana River WMA. Water quality issues in the Santa Ana River Watershed include nitrogen/TDS management in the Santa Ana River and water quality problems associated with dairies and coastal beaches. Water quality degradation due to high concentrations of nitrogen and TDS is among the most significant regional water quality problems in the Santa Ana River Watershed.

### ***Groundwater Quality***

Water in the Orange County Groundwater Management Zone is primarily sodium-calcium bicarbonate. TDS range from 232 to 661 mg/L and average 475 mg/L. Groundwater is impaired by salinity, nitrate, and methyl tertbutyl ether (MTBE).

**Table 3.8.2 Groundwater Quality Objectives for Groundwater Basins  
in the Santa Ana Region**

<b>Constituent</b>	<b>Concentration</b>	<b>Area</b>
Arsenic	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Boron	Shall not exceed 0.75 mg/L as a result of controllable water quality factors.	Santa Ana Region
Chloride	Shall not exceed 500 mg/L as a result of controllable factors.	MUN beneficial use designation
Coliform (total)	Shall not exceed 2.2 organisms/100 mL median over any 7-day period as a result of controllable water quality factors.	MUN beneficial use designation
Color	Waste discharges shall not result in coloration of the receiving waters that causes a nuisance or adversely affects beneficial uses.	Santa Ana Region
Cyanide	Shall not exceed 0.2 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Fluoride	Shall not exceed 1.0 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Hardness	Shall not be increased as a result of waste discharges to levels that adversely affect beneficial uses.	MUN beneficial use designation
Oil and grease	Waste discharges shall not result in deposition of oil, grease, wax, or other materials in concentrations that cause a nuisance or adversely affect beneficial uses.	Santa Ana Region
Barium	Shall not exceed 1.0 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Cadmium	Shall not exceed 0.01 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Chromium	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Cobalt	Shall not exceed 0.2 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Copper	Shall not exceed 1.0 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Iron	Shall not exceed 0.3 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Lead	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Manganese	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Mercury	Shall not exceed 0.002 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Selenium	Shall not exceed 0.01 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Silver	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Methylene blue-activated substances	Shall not exceed 0.05 mg/L as a result of controllable water quality factors.	MUN beneficial use designation

**Table 3.8.2 Groundwater Quality Objectives for Groundwater Basins  
in the Santa Ana Region**

Constituent	Concentration	Area
pH	The pH of groundwater shall not be raised above 9 or depressed below 6 as a result of controllable water quality factors.	Santa Ana Region
Radioactivity	Shall not exceed the California Code of Regulations, Title 22, standards of 5 pCi/L for combined radium-226 and radium-228, 15 pCi/L for gross alpha, 20,000 pCi/L for tritium, 8 pCi/L for strontium-90, 50 pCi/L for gross beta, and 20 pCi/L for uranium.	MUN beneficial use designation
Sodium	Shall not exceed a sodium absorption rate of 9.	AGR beneficial use designation
Sulfate	Shall not exceed 500 mg/L as a result of controllable water quality factors.	MUN beneficial use designation
Taste and odor	Groundwater shall not contain taste- or odor-producing substances in concentrations that adversely affect beneficial uses.	Santa Ana Region
Toxic substances	All waters shall be maintained free of substances in concentrations that are toxic or that produce detrimental physiological responses in human, plant, animal, or aquatic life.	Santa Ana Region

Source: *Water Quality Assessment Report* (August 2015).

AGR = Agricultural Water Supply

mg/L = milligrams per liter

mL = milliliters

MUN = Municipal Water Supply

pCi/L = picocuries per liter

pH = percentage of hydrogen

### 3.8.2.6 List of Impaired Waters

The SWRCB approved the 2012 Integrated Report (CWA Section 303(d) List) on April 8, 2015. On July 30, 2015, the EPA approved the 2012 California 303(d) List of Water Quality Limited Segments. The Santa Ana River, Reach 2, is listed on the 2012 California 303(d) List as impaired for indicator bacteria. There are no approved TMDLs for Reach 2 of the Santa Ana River. The expected completion date for the indicator bacteria TMDL is 2021.

## 3.8.3 Environmental Consequences

### 3.8.3.1 Temporary Impacts

#### ***Build Alternative (Two-Lane Express Lanes Connector) (Preferred Alternative)***

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. Furthermore,

chemicals, liquid products, and petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked during construction and thereby have the potential to be transported via storm runoff into receiving waters.

Construction activities associated with the Build Alternative include grading, excavation, construction of retaining walls and bridge structures, reconstruction of the ramps and connectors, and overall road widening. Construction of the Build Alternative would disturb a total of approximately 43.9 acres (ac), exposing soil and increasing the potential for soil erosion, which could be a source of downstream sediment. When sediment enters a receiving water body, it can increase turbidity, smother bottom-dwelling organisms, and suppress aquatic vegetation growth. When new structures are installed or modified (e.g., retaining walls and road widening), concrete and/or asphalt applications could be a source of fine sediment, metals, and chemicals that could change the pH levels in downstream water bodies. Grading and other earthmoving activities during construction could be a source of petroleum products and heavy metals if the equipment engines leak. Furthermore, temporary or portable sanitary facilities provided for construction workers could be a source of sanitary waste. With the implementation of Measure WQ-1, provided later in this section, the Build Alternative would comply with the requirements of the Construction General Permit. Under the Construction General Permit, the Build Alternative would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement Construction BMPs detailed in the SWPPP aimed at reducing pollutants of concern in the storm water runoff by minimizing erosion and preventing spills, leaks, and discharges into receiving waters. Therefore, with the implementation of Measure WQ-1, the potential for short-term water quality impacts associated with construction of the Build Alternative to adversely affect the physical/chemical characteristics of the on-site or downstream aquatic environment during construction would be reduced.

Runoff from the Build Alternative would drain directly in the Santa Ana River, Reach 2. Drainages in the Project Area are characterized as highly altered or wholly human-made and result in limited biological resources that would be able to support a healthy and functioning on-site aquatic environment. However, runoff from the Build Alternative would drain into receiving waters such as the Pacific Ocean, which depends on the biological characteristics of the aquatic environment to sustain a functioning aquatic ecosystem, an ecosystem that supports the biological (e.g., fish) and human environment (e.g., recreation). As stated previously, the implementation of Measure WQ-1 would require the Build Alternative to prepare a SWPPP and

implement Construction BMPs aimed at reducing pollutants of concern in storm water runoff. Therefore, with the implementation of Measure WQ-1, the potential for short-term water quality impacts during construction of the Build Alternative to adversely affect the biological characteristics of the on-site or downstream aquatic environment during construction would be reduced.

Furthermore, the highly altered or wholly human-made nature of the drainages within the Project Area preclude the beneficial uses associated with human activities, such as contact and noncontact recreation. The Basin Plan identifies both body and non-body contact recreation as intermittent uses for the Santa Ana River, Reach 2. However, the Basin Plan states that recreational uses should not be construed as encouraging recreational activities. Furthermore, in certain reaches of the Santa Ana River, access to the water bodies is prohibited because of potentially hazardous conditions and/or because of the need to protect other uses. However, runoff from the Build Alternative would drain into receiving waters such as the Pacific Ocean, which has beneficial uses associated with human activities that include contact and noncontact recreation. As stated previously, the implementation of Measure WQ-1 would require the Build Alternative to prepare a SWPPP and implement Construction BMPs aimed at reducing pollutants of concern in storm water runoff. Consequently, the Build Alternative would result in negligible changes in the quality of runoff reaching downstream receiving waters during construction. Therefore, with the implementation of Measure WQ-1, the potential for short-term water quality impacts during construction of the Build Alternative to adversely affect the human use characteristics of the on-site or downstream aquatic environment during construction would be reduced.

In addition, groundwater dewatering may be necessary during construction of the footings for the proposed bridge at the junction of SR-241 and SR-91. If groundwater dewatering becomes necessary during construction, Measure WQ-5, provided later in this section, would require the Build Alternative to comply with the provisions of the General Groundwater Permit. The General Groundwater Permit would require the Build Alternative to comply with general waste discharge requirements for discharges to surface waters that pose an insignificant (de minimus) threat to water quality. Therefore, Measure WQ-5 would reduce potential temporary impacts associated with groundwater dewatering during construction.

### **No Build Alternative**

The No Build Alternative does not include any improvements to SR-241 or SR-91 in the Project Area. Therefore, no temporary impacts to water quality or storm water runoff would occur as a result of the No Build Alternative.

#### **3.8.3.2 Permanent Impacts**

##### ***Build Alternative (Two-Lane Express Lanes Connector) (Preferred Alternative)***

Primary pollutants of concern are pollutants that are expected to be or have the potential to be in project runoff based on proposed land uses, and which also have been identified as causing impairments to receiving waters on the most recent 303(d) list or have an established TMDL. Other pollutants of concern are those that are expected to be or have the potential to be in project runoff but do not have an established TMDL for receiving waters and have not been identified as causing impairments to receiving waters. Pollutants of concern during operation of the Build Alternative include suspended solids/sediments, nutrients, pesticides, heavy metals, oil and grease, and trash and debris.

These pollutants of concern are typically generated during the operation of a transportation facility. The Build Alternative would increase impervious area by approximately 20.5 ac. An increase in impervious surface area would increase the volume of runoff during a storm, thereby more effectively transporting pollutants to receiving waters, which in turn causes turbidity and downstream erosion or accretion over existing conditions. Increases in chemical pollutants and changes in temperature and pH may lead to detrimental effects to downstream receiving waters.

As required by Measure WQ-2, provided later in this section, during operation the Build Alternative would comply with the Caltrans NPDES Permit. In addition, as required by Measures WQ-3 and WQ-4, provided later in this section, the Build Alternative would implement Caltrans-approved Design Pollution Prevention and Treatment BMPs to reduce the discharge of pollutants of concern to the maximum extent practicable (MEP), respectively. Design Pollution Prevention BMPs would include slope/surface protection systems, concentrated flow conveyance systems, and vegetation preservation techniques. Treatment BMPs would include biofiltration swales and strips and media filters to target and process pollutants of concern from the operation of transportation facilities, including nutrients, sediments, oil and grease, and trash and debris. The proposed BMPs would treat approximately 135 percent of the net new impervious surface area. With the implementation of Measures



WQ-2 through WQ-4, the Build Alternative would not result in an adverse effect on the physical/chemical characteristics of the on-site or downstream aquatic environments.

As discussed above under Section 3.8.3.1, Temporary Impacts, for the Build Alternative, there are no biological resources present in the Project Area that are dependent on aquatic resources. As noted above, the Build Alternative would increase the amount of impervious surface area, resulting in an increase in the volume of runoff, thereby increasing the energy of the flows and increasing the downstream transport of pollutants to downstream receiving waters. However, with the implementation of Measures WQ-2 through WQ-4, the Build Alternative would comply with the Caltrans NPDES permit and implement Caltrans-approved Treatment BMPs such as biofiltration swales and strips and media filters to treat runoff from the Project Area and reduce pollutants of concern. The Project Area consists of existing freeway and adjacent land. There are no identified biological resources in the Project Area that depend on aquatic resources. Santa Ana sucker designated critical habitat is located in the Santa Ana River, which would receive discharge from the Project Area, although the species is not known from this segment of the river (refer to Section 3.19 for a more detailed discussion). There are additional biological resources within the Santa Ana River. With the implementation and proper oversight of Measures WQ-2 through WQ-4, the Build Alternative would not result in adverse direct or indirect effects on the biological characteristics of on-site or downstream aquatic environments.

As discussed above under Section 3.8.3.1, Temporary Impacts, for the Build Alternative, the drainages in the Project Area preclude beneficial uses associated with human activities (e.g., contact and noncontact recreation). However, runoff from the Build Alternative would drain into receiving waters such as the Pacific Ocean that have beneficial uses associated with human activities, including contact and noncontact recreation. With the implementation of Measures WQ-2 through WQ-4, the Build Alternative would comply with the Caltrans NPDES permit and implement Caltrans-approved Treatment BMPs such as biofiltration swales and strips and media filters to treat runoff from the project site and reduce pollutants of concern. Therefore, with the implementation of Measures WQ-2 through WQ-4, the Build Alternative would result in negligible changes in the quality of runoff that reaches downstream receiving waters, and the Build Alternative would not have an adverse effect on human use characteristics of the Project Area or downstream aquatic environments.

### **No Build Alternative**

The No Build Alternative does not include any improvements to SR-241 or SR-91 in the Project Area. Therefore, no permanent impacts to water quality or storm water runoff would occur as a result of the No Build Alternative.

### **3.8.4 Avoidance, Minimization, and/or Mitigation Measures**

The following regulatory requirements would be implemented with the Build Alternative and would reduce or avoid impacts related to water quality and storm water runoff. These include applicable, previously adopted measures from the ETC Final EIR and Final EIS.

**Measure WQ-1 Construction General Permit.** The Proposed Project will comply with the requirements prescribed in the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-009-DWQ, as amended, or any future replacement permit. The Proposed Project shall comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include Best Management Practices (BMPs) to control the pollutants, such as Sediment Control, Catch Basin Inlet Protection, Construction Materials Management and Nonstorm Water BMPs. All work shall conform to the Construction Site BMP requirements specified in the latest edition of the Caltrans *Storm Water Quality Handbooks: Construction Site Best Management Practices Manual* to control and minimize the impacts of construction and construction-related activities, materials, and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, waste management and materials pollution control, wind erosion control, and other nonstorm water BMPs.

- Measure WQ-2**      **Caltrans Permit.** The Proposed Project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit, *Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation*, Order No. 2012-0011-DWQ, NPDES No. CAS000003 (Caltrans Permit), as amended, or any future replacement permit.
- Measure WQ-3**      **Design Pollution Prevention Best Management Practices.** Caltrans-approved Design Pollution Prevention BMPs will be implemented to the maximum extent practicable (MEP) consistent with the requirements of the *Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation*, Order No. 2012-0011-DWQ, NPDES No. CAS000003 (Caltrans Permit) and the Caltrans Project Planning and Design Guide. Design Pollution Prevention BMPs include preservation of existing vegetation, slope/surface protection systems (erosion control/reseeding and replanting of vegetation) dikes, overside drains, and concentrated flow conveyance systems such as ditches, berms, and biofiltration swales and strips.
- Measure WQ-4**      **Treatment Best Management Practices.** Caltrans-approved Treatment BMPs will be implemented to the MEP consistent with the requirements of the Caltrans Permit, which is described in Measure WQ-2 and the Project Planning and Design Guide. Treatment BMPs may include biofiltration swales, biofiltration strips, and media filters.
- Measure WQ-5**      **Groundwater Dewatering.** If groundwater dewatering is required, the Proposed Project will comply with the provisions of General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality, Order No. R8-2015-0004, NPDES No. CAG998001, as they relate to discharge of non-storm water dewatering wastes for the Proposed Project.

## **ETC Final EIR and Final EIS**

- Measure W-12**      *In conjunction with final design, entry into drainages shall be avoided during site preparation, grading and construction, except where required for construction. Activity in drainages shall be limited to crossings rather than using the lengths of drainage courses for access or for parking automobiles, trucks, and construction equipment. In addition, these areas will be marked for “limited access” on construction plans.*
- Measure W-14**      *During site preparation, grading, and construction, vehicles and equipment shall not be parked in washes or other drainages.*
- Measure W-15**      *During site preparation, grading and construction, overwatering shall be avoided in washes and other drainages.*
- Measure WQ-2**      *The TCA will ensure that all herbicides used in landscaping and weed control are handled, stored, applied, and disposed of consistent with all applicable federal, state, and local regulations.*
- Measure WQ-3**      *Whenever feasible, construction vehicles will be rinsed before leaving the construction area to remove mud and other materials before the vehicles leave the site.*
- Measure E-1**      *In conjunction with final design, the TCA shall map native vegetation outside the right-of-way on grading and construction plans to indicate vegetation to protect from use as vehicle travel or parking areas, storage of equipment and storage of debris or building materials.*
- Measure E-3**      *During final design, the TCA shall ensure that all proposed grading shall conform to the Caltrans Highway Design Manual and the TCA Project Manual Guidelines. All applicable policies and guidelines shall be listed in the grading plans.*
- Measure E-6**      *In conjunction with final design, the TCA shall ensure that cut and fill slopes shall not be steeper than 2:1. Where steeper slopes are indicated, TCA shall, in conjunction with final*

*design, prepare geologic and engineering analyses. These analyses shall determine the safety of those slopes and proposed erosion control measures consistent with Caltrans design standards.*

- Measure E-9** *As part of final design, TCA shall ensure that all slopes shall conform to slope criteria developed by TCA and Caltrans. All slope criteria shall be noted on final plans.*
- Measure E-10** *Fills shall not encroach on natural watercourses or improved channels except as shown on the approved project plans.*
- Measure E-11** *Fills placed against watercourses shall have suitable protection against erosion during storm flows, such as riprap, protective walls, and culverts.*
- Measure E-12** *During site preparation, grading, and construction, the TCA shall ensure that excavated materials shall not be deposited or stored in or alongside watercourses where the materials can be washed away by high water or storm runoff.*
- Measure E-13** *During site preparation and grading, the TCA shall ensure that all land shall be graded to drain and dispose of surface water without ponding, except where approved by Caltrans or the affected responsible public agency.*

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